CLAIMS

[C001] 1. An apparatus for induction heating, said apparatus comprising:

a plurality of heat transfer plates, each of said heat transfer plates being disposed radially with respect to a core axis; and

a plurality of core sections disposed between respective pairs of said heat transfer plates and shaped to form a cylindrical core assembly.

[C002] 2. The apparatus of claim 1 wherein said cylindrical core assembly has the shape of a circular cylinder.

[C003] 3. The apparatus of claim 1 further comprising a cylindrical outer shell disposed to surround said cylindrical core assembly.

[C004] 4. The apparatus of claim 3 wherein said cylindrical outer shell comprises a metal or combination of metals.

[C005] 5. The apparatus of claim 3 wherein said cylindrical outer shell comprises a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

[C006] 6. The apparatus of claim 1 wherein said heat transfer plates comprise a metal or combination of metals.

[C007] 7. The apparatus of claim 1 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

[C008] 8. The apparatus of claim 1 wherein said core sections comprise a ferromagnetic material.

[C009] 9. The apparatus of claim 1 further comprising a coil winding disposed above said cylindrical core assembly.

[C010] 10. The apparatus of claim 1 further comprising an annular coil winding disposed at least partially inside an annular recess in said cylindrical core assembly.

[C011] 11. The apparatus of claim 1 further comprising a support platform disposed above said cylindrical core assembly.

[C012] 12. The apparatus of claim 1 further comprising a heat sink disposed below and thermally coupled to said cylindrical core assembly.

[C013] 13. An apparatus for induction heating, said apparatus comprising:

a plurality of heat transfer plates, each of said heat transfer plates being disposed radially with respect to a core axis;

a plurality of core sections disposed between respective pairs of said heat transfer plates and shaped to form a cylindrical core assembly;

a support platform disposed above said cylindrical core assembly; and

a heat sink disposed below and thermally coupled to said cylindrical core assembly.

[C014] 14. The apparatus of claim 13 wherein said cylindrical core assembly has the shape of a circular cylinder.

[C015] 15. The apparatus of claim 13 further comprising a cylindrical outer shell disposed to surround said cylindrical core assembly.

[C016] 16. The apparatus of claim 13 wherein said heat transfer plates comprise a metal or combination of metals.

[C017] 17. The apparatus of claim 13 wherein said core sections comprise a ferromagnetic material.

[C018] 18. The apparatus of claim 13 further comprising a coil winding disposed above said cylindrical core assembly.

[C019] 19. The apparatus of claim 13 further comprising an annular coil winding disposed at least partially inside an annular recess in said cylindrical core assembly.

[C020] 20. A method of making an apparatus for induction heating, said method comprising:

disposing a plurality of heat transfer plates radially with respect to a core axis; and

disposing a plurality of core sections between respective pairs of said heat transfer plates, said core sections being shaped to form a cylindrical core assembly.

[C021] 21. The method of claim 20 wherein said cylindrical core assembly has the shape of a circular cylinder.

[C022] 22. The method of claim 20 further comprising disposing a cylindrical outer shell to surround said cylindrical core assembly.

[C023] 23. The method of claim 20 wherein said heat transfer plates comprise a metal or combination of metals.

[C024] 24. The method of claim 20 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

[C025] 25. The method of claim 20 wherein said core sections comprise a ferromagnetic material.

[C026] 26. The method of claim 20 further comprising disposing a coil winding above said cylindrical core assembly.

[C027] 27. The method of claim 20 further comprising disposing an annular coil winding at least partially inside an annular recess in said cylindrical core assembly.

[C028] 28. The method of claim 20 further comprising disposing a support platform above said cylindrical core assembly.

[C029] 29. The method of claim 20 further comprising thermally coupling a heat sink below said cylindrical core assembly.

[C030] 30. A method of making an apparatus for induction heating, said method comprising:

disposing a plurality of heat transfer plates radially with respect to a core axis;

disposing a plurality of core sections between respective pairs of said heat transfer plates, said core sections being shaped to form a cylindrical core assembly;

disposing a support platform above said cylindrical core assembly; and

thermally coupling a heat sink below said cylindrical core assembly.

[C031] 31. The method of claim 30 wherein said cylindrical core assembly has the shape of a circular cylinder.

[C032] 32. The method of claim 30 further comprising disposing a cylindrical outer shell to surround said cylindrical core assembly.

[C033] 33. The method of claim 30 wherein said heat transfer plates comprise a metal or combination of metals.

[C034] 34. The method of claim 30 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

[C035] 35. The method of claim 30 wherein said core sections comprise a ferromagnetic material.

[C036] 36. The method of claim 30 further comprising disposing a coil winding above said cylindrical core assembly.

[C037] 37. The method of claim 30 further comprising disposing an annular coil winding at least partially inside an annular recess in said cylindrical core assembly.